

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of high throughput characterization of the biological activity of a candidate compound comprising:

placing a population of cells, solvent, voltage sensitive chemical probes and at least one candidate compound into an area of observation in [[a]] at least one sample well in a multiwell plate;

exposing said population of cells to electric fields produced by one or more pairs of electrodes disposed within said sample well, wherein said electric fields comprise a first pulse series comprising a first plurality of electric pulses and a second pulse series comprising a second plurality of electric pulses with a pause between the first pulse series and the second pulse series, wherein said pause has a duration that is at least as long as twice the time interval between any two pulses in the first pulse series ~~is longer than any time interval between said electric pulses in said first plurality of pulses and said second plurality of pulses~~; and

monitoring changes in transmembrane potential of said population of cells in said sample well by monitoring emission from said voltage sensitive chemical probes during at least a portion of said first pulse series and a portion of said second pulse series in a parallel assay high throughput manner.

2. (Original) The method of Claim 1 wherein monitoring comprises optically monitoring.

3. (Original) The method of Claim 2 wherein optically monitoring comprises detecting fluorescence emission of a FRET based voltage sensor from an area of observation containing said population of cells.

4. (Original) The method of Claim 1, further comprising comparing data gathered from said first pulse series with data gathered from said second pulse series.

5. (Original) The method of Claim 1, wherein the changes in the transmembrane potential are indicative of ion channel recovery from block by said compound.

6-10. (Cancelled)